Ex02

Introduction: One of the main obstacles of new comer of Power BI is dealing with relationships. This exercise will guide you to understand the concept of relationships, primary-key, foreign-key, and self-reference by using Excel.

Objective: Define relationships under Data Model and the impacts of relationship to reports.

Pre-requisites:

- 1) Understand what is Named Range in Excel
- 2) Understand what is Table object in Excel

Steps:

Part-1: Prepare Data Workbook

- 1. Create a new Excel workbook with name "Ex02.xlsx".
- 2. Rename "Sheet1" as "Lists" and prepare the following data:

E	. •	٠ c	ð -	÷	Ex02.xlsx	- Exce	el	Sign	in	ĺ	<u></u> ∎ –		×
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	Α	В	С	D	E	F		G	н	Т	J	К	
1													
2													
3													
4													
5			DID	Department Name	No of Employees	HID	Head				Race Name		
6			FN	Finance							Malay		
7			HR	Human Resource							Chinese		
8			IT	Information Technology							Indian		
9			OP	Operation									
10			QA	Quality Assurance									
11			RD	Research & Development									
12			SA	Sales									
13													T
	()	•	L	ists (+)				4					
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3. Mark range C5:G12 to create a new Table with name "TblDepartment":

		TblDepartme	ent	
DID	Department Name	No of Employees	HID	Head
FN	Finance			
HR	Human Resource			
IT	Information Technology			
OP	Operation			
QA	Quality Assurance			
RD	Research & Development			
SA	Sales			

4. Mark range J5:J8 to create a new Table with name "TblRace":



5. Create a new worksheet with name "Employee" and prepare the contents as shown below:

E	3	€ ,-	¢∓			Ex02.xls	x - Excel		Sig	jn in 🖻	—		×
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		Α	В	С	D	E	F	G	н	I.	J	K	
1													
2			EID	Name	Gender	Department	Race	Supervisor	Age	Basic Salary			
3			1000	Tong Sam Pah	М	IT	Chinese	1005	23	5000			
4													
5													
6													
7													
8													
9													-
	•	F	Lists	Employee	(+)			•					Þ
Rea	dy	•							Ξ	──	-		1%

6. Apply Data Validation on cell D3 as following:

🛛 🔊		Ex02.xlsx - Excel	Sign in 🖬 — 🗆
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	Refresh All - Connect	2↓ <u>XA</u> X↓ Sort Filter X Sort liter	st Outline
3	EID Name 1000 Tong Sam Pah	M IIT	
4		Text to Flash Columns Fill	Remove Data Consolidate Relation
6 7			Data Validation

In the validation dialog box:

Data Va	n			? 🛛				
Settings	Input Message	Error Alert						
Validation <u>A</u> llow: List Data:	criteria		ore <u>b</u> lank ell dropdown					
between <u>S</u> ource: M,F,O	n	~	Ť					
Apply these changes to all other cells with the same settings								
<u>C</u> lear All			ОК	Cancel				

7. Apply Data Validation on cell E3 as following:

Data Validatio	8 23						
Settings Input Message Error Alert							
Validation critecia							
Allow:							
List 🗾 🗸 🗹 Ignore <u>b</u> lank							
Data:							
between 🗡							
Source:							
=INDIRECT("TbIDepartment[DID]")							
Apply these changes to all other cells with the same settings							
<u>C</u> lear All OK	Cancel						

Beware that the <u>Source is: =INDIRECT("TblDepartment[DID]")</u>

8. Apply Data Validation on cell F3 as following:

Data Vali	lon			8 23				
Settings	Input Message	Error Alert						
Validation <u>A</u> llow:	n criteria	V V Igno	ore <u>b</u> lank					
List Data:			ell dropdown					
betwee <u>S</u> ource:	n							
=INDIF	ECT("TblRace[Race	Name]")	Ţ					
Ap <u>p</u> ly	Apply these changes to all other cells with the same settings							
<u>C</u> lear All			ОК	Cancel				

Beware that the <u>Source is: =INDIRECT("TblRace[Race Name]")</u>

9. Apply Data Validation on cell H3 as following:

Data Validat	? 🛛
Settings Input Message Error Alert	
Validation criteria Allow:	
Whole number V Ignore blank	
Minimum: 16	
Ma <u>x</u> imum: 60	
Apply these changes to all other cells with the same sett	
<u>C</u> lear All OK	Cancel

10. Apply Data Validation on cell I3 as following:

Data Valida n 😵 🔀							
Settings Input Message Error Alert							
Validation criteria <u>A</u> llow: Decimal							
Data: greater than or equal to Minimum							
1200 1							
Apply these changes to all other cells with the same settings							
Clear All OK Cancel							

11. Select range B2:I3:

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File		Home	Insert	Page Layout	Formulas	Data Review	View Develop	er My Own Tab	Help	Power Pivot	Q	Tell m
B2				• :	× 🗸 j	Éx EID						
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1												
2		EID	N	Name	Gender	Department	Race	Supervisor	Age	Basic Salary	,	
3		10	000 T	ong Sam Pah	М	IT	Chinese	1005	23		5000	
4												

12. Create a table for this range as TblEmployee:

1	A	В	C	D	E		E	G	н			
2		EID	Name	Gender	Department	Race		Superviso	r Age	Basic Sal	ary	
3		1000	Tong Sam Pah	M	IT	Chine	ese		23		5000	
4				Card South States and Card Sta		100				-		
5							Format	As Table	?	×		
6							and the second	the data for yo		-		
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9								OK	Cancel	537 L		
0							L				111.	
Ell	D	Nar	me	Gender	Departmer	nt R	ace	Sup	ervisor	Age	Basic Salary	
		1000 Ton	ng Sam Pah	М	IT	С	hinese	<u>;</u>		23		500

13. Apply Data Validation on cell G3 as following:

Data Validat	ion	8 23						
Settings	Input Message	Error Alert						
Validation	rriteria							
<u>Allow:</u>								
List		✓ Ignore <u>b</u> lank						
Data:		✓ In-cell dropdown						
betwee	'n	~						
Source:								
=INDIR	ECT("TblEmployee	:[EID]") 🛨						
Ap <u>p</u> ly	Apply these changes to all other cells with the same settings							
<u>C</u> lear All		OK Cancel						

Beware that the <u>Source is: =INDIRECT("TblEmployee[EID]")</u>

14. Complete the table with following data:

	А	В	С	D	E	F	G	Н	I
1									
2		EID	Name	Gender	Department	Race	Supervisor	Age	Basic Salary
3		1000	Tong Sam Pah	Μ	IT	Chinese		23	5000
4		1002	Yong Tau Foo	Μ	FN	Chinese		25	4800
5		1005	Low Mee	F	IT	Chinese		26	5100
6		1008	Low Shi Fun	F	IT	Chinese		24	4300
7		1010	Ali	Μ	HR	Malay		29	4700
8		1012	Abu	Μ	FN	Malay		35	5340
9		1015	Ahmad	Μ	IT	Malay		40	6500
10		1017	Aaron	Μ	OP			32	5500
11		1020	Ah Chong	Μ	SA	Chinese		28	5600
12		1022	Azizi	Μ	RD	Malay		30	5780
13		1028	Shila Hamzah	F	SA	Malay		25	4325
14		1030	Narayanan	Μ	FN	Indian		27	4340
15		1032	Fatimah	F	SA	Malay		26	5345

· · ·									
	A	В	C	D	E	F	G		I
2		EID	Name	Gender	Department	Race	Supervisor	Age	Basic Salary
3		1000	Tong Sam Pah	Μ	IT	Chinese	1005	23	5000
ł		1002	Yong Tau Foo	Μ	FN	Chinese	1015	25	4800
5		1005	Low Mee	F	IT	Chinese	1015	26	5100
5		1008	Low Shi Fun	F	IT	Chinese	1005	24	4300
'		1010	Ali	Μ	HR	Malay	1015	29	4700
3		1012	Abu	Μ	FN	Malay	1002	35	5340
)		1015	Ahmad	Μ	IT	Malay		40	6500
D		1017	Aaron	Μ	OP		1015	32	5500
1		1020	Ah Chong	Μ	SA	Chinese	1028	28	5600
2		1022	Azizi	Μ	RD	Malay	1015	30	5780
3		1028	Shila Hamzah	F	SA	Malay	1015	25	4325
4		1030	Narayanan	Μ	FN	Indian	1002	27	4340
5		1032	Fatimah	F	SA	Malay	1015	26	5345

15. Now, complete the supervisor column:

16. Select cell J2, type the title "Chart", then press enter:

A	۹	В	С	D	E	F	G	Н	I	J	
		EID	Name	Gender	Department	Race	Supervisor	Age	Basic Salary	Chart	F
		1000	Tong Sam Pah	Μ	IT	Chinese	1005	23	5000		7
		1002	Yong Tau Foo	Μ	FN	Chinese	1015	25	4800		
		1005	Low Moo	C	IT	Chinoso	1015	26	5100		

A new column will be auto generated (If this is not the case, just right click on cell I2, select "Insert" + "Table column to the right" to add this new column).

17. In cell J3, type "=" then followed by mouse select cell I3. The following formula will be generated:



18. Press Enter to confirm. The following result appears:

				- 0					
EID		Name	Gender	Department	Race	Supervisor	Age	Basic Salary	Chart 🥌
	1000	Tong Sam Pah	М	IT	Chinese	1005	23	5000	5000
	1002	Yong Tau Foo	М	FN	Chinese	1015	25	4800	4800
	1005	Low Mee	F	IT	Chinese	1015	26	5100	5100
	1008	Low Shi Fun	F	IT	Chinese	1005	24	4300	4300
	1010	Ali	М	HR	Malay	1015	29	4700	4700
	1012	Abu	М	FN	Malay	1002	35	5340	5340
	1015	Ahmad	М	IT	Malay		40	6500	6500
	1017	Aaron	М	OP		1015	32	5500	5500
	1020	Ah Chong	М	SA	Chinese	1028	28	5600	5600
	1022	Azizi	М	RD	Malay	1015	30	5780	5780
	1028	Shila Hamzah	F	SA	Malay	1015	25	4325	4325
	1030	Narayanan	М	FN	Indian	1002	27	4340	4340
	1032	Fatimah	F	SA	Malay	1015	26	5345	5345

19. Select range J3:J15 (Entire Chart column), go to Home ribbon tab, select "Purple Data Bar":

Help	Power Pivot Design Q	Tell me what you want to do
▼ 00. 00. +00	Conditional Format as Cell Formatting • Table • Styles •	Insert Delete Format ➤ ✓
	as Highlight Cells Rules	Cells Editing
23	Top/Bottom Rules	
25		Gradient Fill
26	Data Bars	Gradient Fill
24		
29	Color Scales	
35	Icon Sets	Solid Fill
40		
32	New Rule	
28	Clear Rules	
30	Manage <u>R</u> ules	Purple Data Bar
25	4325 432	More Rules Add a colored data bar to represent
27	4340 434	the value in a cell. The higher the value, the longer the bar.
26	5345 534	5

20. While still selecting the Chart column, Select "Manage Rules...:

		•	
% *). 0. -) ← 00.	20	Conditional Format as Cell Insert Formatting Table Styles T
lumber 🗔			Highlight Cells Rules
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)15	25) D
)15	26		Icon Sets
)05	24		🔝 New Rule D
)15	29		🐺 Clear Rules
002	35		🔝 Manage <u>R</u> ules

21. Under "Conditional Formatting Rule Manager" dialog box, Select the Data Bar rule, then select "<u>E</u>dit Rule...":

Conditional Formatting Rules Mana	? 🛛
Show formatting rules for: The re	
New Rule Edit Rule X Delete Rule	
Rule (applied in order shown) Format pplies to	Stop If True
Data Bar = \$J\$3:\$J\$15	
OK Close	Apply

22. Under "Edit Formatting Rule" dialog box, check "Show <u>Bar Only</u>", then press OK to end:

Edit Formatti	ing Rule 🛛 🕄 🖾								
Select a Rule Type:									
► Format all cells based on their values									
Format o	► Format only cells that contain								
Format o	only top or bottom ranked values								
	only values that are above or below average								
	only unique or duplicate values								
► Use a for	rmula to determine which cells to format								
Edit the Rule	e Description:								
Format all	cells based on their values:								
F <u>o</u> rmat Styl	le: Data Bar 🗸 Kow <u>B</u> ar Only								
	Minimum Maximum								
<u>T</u> ype:	Automatic 🗸 Automatic								
<u>V</u> alue:	(Automatic)								
Bar Appear	rance:								
<u>F</u> ill	Color Border Color								
Solid Fill	Solid Fill 🗸 No Border 🗸								
Negative Value and Axis Bar Direction: Context									
	Preview:								
	OK Cancel								

When back to "Conditional Formatting Rule Manager" dialog box, press "OK" to end.

23. The result appears:

Age	Basic Salary	Chart	
23	5000		
25	4800		
26	5100		
24	4300		
29	4700		
35	5340		
40	6500		
32	5500		
28	5600		
30	5780		
25	4325		
27	4340		
26	5345		

24. Go to "Formula" ribbon tab, select "Name Manager":

ge Layout	Formulas	Data	Review	View	Devel	oper 🗸	Own Tab	Help
ncial Logical	Text Dat	e & Look ne * Refer		h& M	ore tions =	Name Manager	 Define Na 꽃 Use in Fo 금 Create fro Defined Nam 	rmula = om Select
	× v	f_x				Name	Manager (Ctr	I+F3)

25. Under "Name Manager" dialog box, select "<u>N</u>ew...":

Name Manaz			8 23
<u>N</u> ew	dit Delete		<u>F</u> ilter ▼
Name TbIDepartment TbIEmployee TbIRace	Value {"FN","Finance","3", {"1000","Tong Sam {"Malay";"Chinese";	Scope Workbo Workbo	Comment
Refers to:			Close

26. Under "New Name" dialog box, prepare the following:

New Name	
<u>N</u> ame:	EPFEmployee
<u>S</u> cope:	Workbook
C <u>o</u> mment:	^
<u>R</u> efers to:	=11%
	OK Cancel

27. Press "OK" to confirm, now a new Name is added:

Name Manager				8 23
<u>N</u> ew	Edit <u>D</u> elete			<u>F</u> ilter ▼
Name	alue	Refers To	Scope	Comment
EPFEmployee	{}	=11%	Workbo	
TbIDepartment TbIEmployee	{"FN", "Finance", "3", {"1000", "Tong Sam {"Malay"; "Chinese";	= Lists!\$C\$6:\$G\$12 = Employee!\$B\$3:\$J = Lists!\$J\$6:\$J\$8	Workbo Workbo Workbo	
Refers to:				*
= 1176				Close

Press "Close" to end the new name creation.

28. Type "Monthly Salary" in cell K2:



29. Confirm with "Enter". Now a new column is generated:



30. In cell K3, prepare the formula "":

		J	K	L	M
	Basic Salary	Chart	Monthly Salary		
3	5000		=(100%-EPFEmploy	ee)*[@[Bas	sic Salary]]

31. Press "Enter" generate the column formula:

Basic Salary	Chart	Monthly Salary
5000		4450
4800		4272 📝
5100		4539
4300		3827
4700		4183
5340		4752.6
6500		5785
5500		4895
5600		4984
5780		5144.2
4325		3849.25
4340		3862.6
5345		4757.05

32. Generate a new column "EPF Account":

	J	К	L	
	Chart	Monthly Salary	EPF Account	
00		4450		
00		4272		

J	К	L	
Chart	Monthly Salary	EPF Account	
	4450	1150	
	4272	1104	7
	4539	1224	
	3827	989	
	4183	1081	
	4752.6	1281.6	
	5785	1560	
	4895	1320	
	4984	1344	
	5144.2	1387.2	
	3849.25	994.75	
	3862.6	998.2	
	4757.05	1282.8	
		Chart Monthly Salary Chart Monthly Salary Image: Add train the second	Monthly Salary EPF Account Chart Monthly Salary EPF Account 4450 1150 4272 1104 4539 1224 3827 989 4183 1081 4183 1081 4183 1081 4183 1081 4183 1081 4183 1081 4183 1081 4183 1081 4183 1081 4183 1081 4183 1081 4183 1081 4183 1081 4183 1320 4184 1320 4895 1320 4895 1320 4984 1344 4984 1387.2 3849.25 994.75 3862.6 998.2

33. Under cell L3, type the formula "=(EPFEmployee+(EPFEmployee+IF([@[Basic Salary]]>5000,2%,1%)))*[@[Basic Salary]]" and press "Enter" to generate column formula:

34. Format "Basic Salary", "Monthly Salary", and "EPF Account" column with Accounting Format:

	G	Н		J		K	L
	Supervisor	Age	Basic Salary	Chart	Mont	thly Salary	EPF Account
se	1005	23	\$ 5,000.00		\$	4,450.00	\$ 1,150.00
se	1015	25	\$ 4,800.00		\$	4,272.00	\$ 1,104.00
se	1015	26	\$ 5,100.00		\$	4,539.00	\$ 1,224.00
se	1005	24	\$ 4,300.00		\$	3,827.00	\$ 989.00

35. Save and close the workbook.

Notes: Make sure that you hide all the tables' total row before saving, fail to do so, the total row could be considered as an additional record for the table. This will give you a lot of troubles when loading from Power BI.

Part-2: Loading Data from Power BI Desktop

36. Crate new Power BI project with name "Ex02.pbix".



37. From the main UI, select load Excel data source:



38. In the "Open" dialog box, select excel workbook "Ex02.xlsx" you just created:

Organize 🔻 New	folde	er
Documents	^	Name
🕂 Downloads		Ex02.xlsx
L		

39. Press "Open", in the "Navigator" dialog box, select the following 3 tables (Don't load at this moment):

Navigator



You can preview the data for each table.

40. Still under "Navigator" dialog box, press the "Transform Data" button at the bottom right of the dialog box:



This will open the Query Editor:

	⇒ Ex02	- Power (Query Ed	itor											
File	Home	Transf	orm	Add Column	View	Tools H	lelp								_ ^ ?
rt Close & Apply • Close		Recent Sources •		Data source settings Data Sourc	Manage Parameter Parameter	s • Preview •	Properties	Editor	Manage Columns • Rows •	2↓ ∡↓ Sort		Group By	□ □ 1,	ta Type: Whole Numl Use First Row as He 2 Replace Values ransform	
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TbiR			3		1005	Low Mee		F		IT				TblEmployee	
	ace		4		1008	Low Shi Fun		F		IT				All Properties	
			5		1010	Ali		м		HR					
			6		1012	Abu		м		FN			4	APPLIED STEPS	
			7		1015	Ahmad		м		IT				Source	÷
			8		1017	Aaron		м		OP				Navigation	*
			9		1020	Ah Chong		м		SA				× Changed Type	
			10		1022	Azizi		м		RD					
			11		1028	Shila Hamzah		F		SA		~			
			12		1030	Naravanan		м		FN					
			17								>				
11 COLUMI	NS, 13 RO\	NS Colu	mn profili	ing based on top	1000 rows								PRE	VIEW DOWNLOADED	AT 9:42 PM

- 41. Select TblEmployee table, right click the column headers to "Remove" the following 3 columns (Need to scroll to far right of the table):
 - a. Chart
 - b. Monthly Salary
 - c. EPF Amount

Parameters	Query	🗈 Сору	1
▼ 1 ² ₃ Chart	▼ 1.2 Month	💥 Remove	-
5000	5000	Remove Other Columns	.50

Notes: These columns are not needed. We can reproduce from Power BI later.

Beware that a new **Applied Step** generated to group all 3 steps as one. (Some steps can be grouped):



42. Scroll to the left of TblEmployee, right click header "Gender" and select "Replace Values...":

Manage Parameters •	Refresh Preview - 📰 Manage		Remove Duplicates		C
Parameters	Query		Remove Errors		
Name	▼ A ^B _C Gender		Change Type	F]
Sam Pah	м		Transform	•	Γ
Tau Foo	м	1 ₩2	Replace Values		ľ
Mee	F		Replace Errors		ľ

43. Under "Replace Values" dialog box, prepare the following:

	lue with another	in the selected of	olumns.		
/alue To Find M					
Replace With					
Male					

44. Press "OK" to confirm. The result:

-	A ^B _C Gender	A ^B C Dep
	Male	IT
	Male	FN
	F	IT
	F	п
	Male	HR
	Male	FN

45. Right click to rename the new Applied Step as "Replaced M as Male":

alay		
alay 🔺	APPLIED STEPS	
alay	Source	*
	Navigation	4
inese	Changed Type	
alay	Removed Columns	
alay 🗸	imes Replaced M as Male	*

46. Replace F as Female and O for Others for Gender column again. You will notice that these steps can't be grouped. Rename the generated Applied Steps. It is always a good practice to give meaningful names to the Applied Steps.

47. Now, the current state is as below:

File	Home Tran	sform	Add Colur	mn View Tools	Help			^
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Queries	[3] <		Ţ	A ^B C Name	A ^B _C Gender	▼ A ^B _C Department ▼	A ^B _C Race	Query Settings X
🛄 ТЫDe	epartment	1	1000	Tong Sam Pah	Male	IT	Chinese	▲ PROPERTIES
III TblEr	nployee	2	1002	Yong Tau Foo	Male	FN	Chinese	Name
TbiRa	ace	3	1005	Low Mee	Female	IT	Chinese	TblEmployee
		4	1008	Low Shi Fun	Female	IT	Chinese	All Properties
		5	1010	Ali	Male	HR	Malay	
		6	1012	Abu	Male	FN	Malay	▲ APPLIED STEPS
		7	1015	Ahmad	Male	IT	Malay	Source 🚸
		8	1017	Aaron	Male	OP		Navigation 🕀
		9	1020	Ah Chong	Male	SA	Chinese	Changed Type
		10	1022	Azizi	Male	RD	Malay	Removed Columns
		11	1028	Shila Hamzah	Female	SA	Malay	Replaced M as Male
		12	1030	Narayanan	Male	FN	Indian	Replace F as Female
		13	1032	Fatimah	Female	SA	Malay	➤ Replaced O as Others
		<	-				>	

- 48. Can you remove "Head" column from TblDepartment?
- 49. Select the "Close & Apply" to start the loading and transformation:



50. Wait until the process finish:

Apply query changes	×
TblDepartment Loading data to model	
∴ TblEmployee Loading data to model	
∵ TblRace Loading data to model	
	Cancel

D				I	Ex02 - Power E	8I Deskto	р		LEI	NG KON(•	_		×
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	Name	TblDepa	artment		Mark as date table v) = nage onships	New measure	Quick measure	New column	New table			
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唱	HR	Hur	nan Resource	•		1	1022							
-48	IT	Info	rmation Tech	nology		4	1010	_			~ ⊞	TblDepa	rtment	
	OP	Оре	eration			1	1015	-			~ ⊞	TblEmple	oyee	
	QA	Qua	ality Assurance	e		0	1017	-			~ ⊞	TblRace		
	RD	Res	earch & Deve	lopment		1	1020				• ===			
	SA	Sale	25			3	1012							
Table	TblDe	partmen	t (7 rows)							Upo	late ava	ilable (clic	k to dow	nload)
Now,	seled	ct the N	Model Vie	w:										
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唱		шт	blDepartm				TblEmpl	oyee						
			epartment N	ame			Age							
							Basic Sal	ary						
		I II H	ID				Departm	ent						
		🔲 🖽 N	lo of Employe	es			EID							
							Gender							
							Name							
							Race							
							Supervis	or						
									1	III Tb	IRace ce Name	2		

51. Back to main UI, select the Data View to view the loaded data:

Noted that there is a relationship auto inferred by the system. This relationship is correct. However, not all the inferred relationships are correct. Check them before proceed. Remove unnecessary relationships.

- LEN Ex02 - Power BI Desktop 日 Home Insert Modeling View Help File X Cut Ē х Ó Copy SQL Paste Excel Power BI Enter Transform Refresh Get Recent New Text More ダ Format painter datasets Server data 🗸 data 🗸 data sources 🗸 visual box visuals 🗸 ard Data Queries Insert 000 < Visualizations Ħ 2 - \sim 2 \bowtie AP \mathbf{A} Filters Build visuals with your data 晿 Select or drag fields from the Fields pane onto the rľ 0 Table report canvas. E Ç R R Py Ħ ø 17 7 \otimes -E ... 7
- 52. Select the Report View and select Table from Visualizations:

- 53. While the table visual element is selected, select the following fields from the TblEmployee:
 - a. EID
 - b. Name
 - c. Department

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唱	7 6		Filters on this visual			∨ ⊞ TblDepartment
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			is (All)		<u> </u>	 Department
			Name		Values	S EID
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			Add data fields here		Name $\checkmark \times$	Name Name
			Add data fields field		Department $\checkmark \times$	Race Supervises
						Σ Supervisor

54. You will realize that something not right with the EID field. The reason is the system by default will apply aggregate function "Count" to this column. To fix this problem, under the property EID, select "Don't Summarize":



55. Now, the table visual element should look like this:

000	< 1	Back to report	
	EID		Department
晿	1000	Tong Sam Pah	IT
	1002	Yong Tau Foo	FN
	1005	Low Mee	IT
	1008	Low Shi Fun	IT
	1010	Ali	HR
	1012	Abu	FN
	1015	Ahmad	IT
	1017	Aaron	OP
	1020	Ah Chong	SA
	1022	Azizi	RD
	1028	Shila Hamzah	SA
	1030	Narayanan	FN
	1032	Fatimah	SA

56. How to show the department name instead of Department ID? Try select the "Department Name" from TblDepartment for this table. What happened?



57. Back to the Model View, drag the "Department" field from TblEmployee and drop it to "DID" field of TblDepartment:



Can you explain the meaning of 1 and * of the two ends of relationship? This is so called the Cardinality/Multiplicity.

58. Switch back to the Report View, now we should get the following result:

	< 1	Back to report		
	EID	Name	Department	Department Name
Ľ	1000	Tong Sam Pah	IT	Information Technology
	1002	Yong Tau Foo	FN	Finance
L	1005	Low Mee	IT	Information Technology
	1008	Low Shi Fun	IT	Information Technology
L	1010	Ali	HR	Human Resource
	1012	Abu	FN	Finance
	1015	Ahmad	IT	Information Technology
	1017	Aaron	OP	Operation
	1020	Ah Chong	SA	Sales
	1022	Azizi	RD	Research & Development
	1028	Shila Hamzah	SA	Sales
	1030	Narayanan	FN	Finance
	1032	Fatimah	SA	Sales

59. Delete the Department column from the table element. It is not needed now:



Observe the table element result.

60. Now drag the "Department Name" and drop it in between "EID" and "Name" field:

7 @	
Values	
EID	$\sim \times$
Department Name	$\sim \times$
Name	$\sim \times$

Observe the table element result.

61. Press Undo at the top left corner of the main UI:



62. Select back to repet to minimize the table element:



63. Back to Model View. The previous relationship between TblEmployee and TblDepartment is about "The information pertaining employee attachment to department". But there should be another relationship between these two tables, right? Guess what 😊



You will aware that this newly created relationship is in dotted form. This means, it is inactive. If you have more than one relationship among tables (including indirect relationships), at any point of time, it should be only one active relationship allowed by the system. Find out how to solve the following problem:

- a) How to make the newly created relationship as active relationship? (Hints: right-click relationships to change the properties)
- b) The cardinality of the newly created relationship is 1 to 1. This is due to our current data set values. But, in reality, an employee can be given more than one department head roles. What should we do to the model?



64. Find out how to show the Department name and its department head name on the same table visual element as shown below?

A Back to report	
Department Name	Name
Quality Assurance	Aaron
Sales	Abu
Research & Development	Ah Chong
Operation	Ahmad
Information Technology	Ali
Human Resource	Azizi
Finance	Shila Hamzah

65. Consider the following challenges:

Paste		nsert Modeling Get Excel Power B data v dataset	View Help	Transform Refresh data v	New Text Mo visual box visua	ore New als v meas		(Pu
Clip	board		Data	Queries	Insert	Ci	alculations	s
田 1002 1005 1010 1012 1015 1017 1020 1022 1028 1030	Yong Tau Foo Low Mee Low Shi Fun Ali Abu Ahmad Aaron Ah Chong Azizi	Department Name Information Technology Finance Information Technology Information Technology Human Resource Finance Information Technology Operation Sales Research & Development Sales Finance Sales	Department Name Finance Human Resource Information Technolo Operation Quality Assurance Research & Develop Sales	Ahmad Aaron	Aaron Abu Ah Chong Ahmad Ali Azizi Fatimah Low Mee Low Shi Fun	Low Mee		Filte

- a. What kind information provided by Table-1, 2 and 3?
- b. How put both Table-1 and Table-2 together in a single report page when there are from the same set of tables?
- c. How to show table-3 that involve "Self-Reference"?

One of the Solution for b and c: Load another set of tables from the same data source, so that maintain single active relationship. Refer to the following Data Model. Try to complete this challenge by yourself.

🖪 TblDepartment 💿 🗄			Alias table	🖻 TblDepartment (2) 💿 🗄
Department Name DID HID No of Employees Collapse ^	1	 ➡ TblEmployee ∑ Age ∑ Basic Salary Department EID 		Department Name DID HID Collapse ^
		Gender Name Race Supervisor	*	■ TblSupervisor ⑦ :
B TblRace		Collapse ^	_	Name Collapse ^
Collapse 个				

Alias tables = another copy of loading from same data source (Need not have same set of field or transformation) that keep just enough info needed.

🖻 TblDepartment 💿 🗄	
Department Name	🖪 TblEmployee 💿 :
DID	∑ Age
HID	∑ Basic Salary
No of Employees	Department
Collapse ^	EID
	Gender
	Name
	Race
	Supervisor
	Race
	Supervisor
🖻 TblRace 💿 :	Collapse 🔿
Race Name 1	*

🖪 TblEmployee 💿 🗄	TblDepartment (2) 💿 🗄
∑ Age	Department Name
∑ Basic Salary	DID
Department	HID
EID	Collapse ^
Gender	*
Name	TblSupervisor © :
Race	EID
Supervisor	Name
Collapse	Collapse ^

Alternative solution: DAX

Good luck 😊

BTW, we only discuss the relationship direction under Exercise #6 later.